National Institute of Environmental Health Sciences

Effects of ambient temperature, humidity, and other meteorological variables on hospital admissions for angina pectoris

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Abstract:

BACKGROUND: Seasonal peaks in cardiovascular disease incidence have been widely reported, suggesting weather has a role. DESIGN: The aim of our study was to determine the influence of climatic variables on angina pectoris hospital admissions. METHODS: We correlated the daily number of angina cases admitted to a western Sicilian hospital over a period of 12 years and local weather conditions (temperature, humidity, wind force and direction, precipitation, sunny hours and atmospheric pressure) on a day-to-day basis. A total of 2459 consecutive patients were admitted over the period 1987-1998 (1562 men, 867 women; M/F - 1:8). RESULTS: A seasonal variation was found with a noticeable winter peak. The results of Multivariate Poisson analysis showed a significant association between the daily number of angina hospital admission, temperature, and humidity. Significant incidence relative ratios (95% confidence intervals/measure unit) were, in males, 0.988 (0.980-0.996) (p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.004) for minimal temperature, 0.990 (0.984-0.996) (p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.001) for maximal humidity, and 1.002 (1.000-1.004) (p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.045) for minimal humidity. The corresponding values in females were 0.973 (0.951-0.995) ($p < 0.017$) for maximal temperature and 1.024 (1.001-1.048) (p Euro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.037) for minimal temperature. CONCLUSIONS: Environmental temperature and humidity may play an important role in the pathogenesis of angina, although it seems different according to the gender. These data may help to understand the mechanisms that trigger ischemic events and to better organize hospital assistance throughout the year.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Italy

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): angina pectoris

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified